APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,352	11/27/2001	Stanley W. Driggs	LM(F)5791	9014

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TAROLLI, SUNDHEIM, COVELL & TUMMINO L.L.P.
526 SUPERIOR AVENUE, SUITE 1111
CLEVEVLAND, OH 44114

EXAMINER
CHANG, JON CARLTON

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .
2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1,2,5,7,10-12,15,17 and 20* is/are rejected.
7) ☒ Claim(s) *3,4,6,8,9,13,14,16,18 and 19* is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on *27 November 2001* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *11/27/01 & 1/6/03*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1, 2, 10-12 and 20 are rejected under 35 U.S.C. 102(b) as being

anticipated by U.S. Patent 5,790,754 to Mozer et al. (hereinafter "Mozer").

Regarding claim 1, Mozer discloses a method of classifying an input pattern into

an associated class, comprising:

extracting data pertaining to preselected features present within

the input pattern (column 8, lines 10-67);

determining, via a first classification technique, a discriminant value for each of a

plurality of classes reflecting the relative likelihood that a class is the associated class;

selecting a class with the highest relative likelihood (column 2, lines 36-44; column 9,

lines 54-67; the disclosed probability is interpreted ad a likelihood);

generating, via a second classification technique, a confidence value reflective of

the a posteriori probability that the selected class is the associated class (column 16,

lines 63-64; column 17, lines 1-3; the described "interpretation" is essentially a second

classification technique, wherein the class probability is the a posteriori probability,

which is reflected by the confidence value); and

rejecting the selected class if the determined confidence value is below a

predetermined threshold value (column 17, lines 2-3).

As to claim 2, Mozer discloses a method as set forth in claim 1 wherein the first

classification technique uses a modified Bayesian distance function to compute the

discriminant values (column 2, line 37; the altered Bayes classifier is a modified Bayes

distance function).

As to claim 10, Mozer discloses a method as set forth in claim 1 wherein the

input pattern is an audio recording (abstract).

With regard to claims 11, 12 and 20, the discussions provided above for claims 1,

2 and 10 are applicable. The computer program product with associated portions is

inherent in the computer/microprocessor-based system (Fig.1; column 12, line 6).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

5.   Claims 1-2, 5, 7, 11-12, 15 and 17 are rejected under 35 U.S.C. 103(a) as being

unpatentable over the combination of U.S. Patent 5,835,633 to Fujisaki et al.

(hereinafter "Fujisaki") and Mozer.

Regarding claim 1, Fujisaki discloses a method of classifying an input pattern into

an associated class, comprising:

extracting data pertaining to preselected features present within the input pattern

(column 4, lines 44-50);

determining, via a first classification technique, a discriminant value for each of a

plurality of classes reflecting the relative likelihood that a class is the associated class;

selecting a class with the highest relative likelihood (column 4, line 63 to column 5, lines

30; column 3, lines 42-44).

Fujisaki also discloses a second classification technique (column 5, lines 11-21;

the classes here are not the same as with the first classification technique) and

generating confidence values (column 7, line 27), but does not disclose the claimed

generating and rejecting steps. However, these are well known in the art of pattern

recognition, as evidenced by Mozer. Mozer discloses:

generating, via a second classification technique, a confidence value reflective of

the a posteriori probability that a selected class is the associated class (column 16, lines

63-64; column 17, lines 1-3; the described "interpretation" is essentially a second classification technique, wherein the class probability is the a posteriori probability, which is reflected by the confidence value); and

rejecting the selected class if the determined confidence value is below a predetermined threshold value (column 17, lines 2-3).

While Mozer deals with audio processing, once the features are inputted into the neural network, the neural network is performing pattern recognition, which is applicable to any type of pattern. Mozer indicates that the technique improves performance (column 16, lines 61-62). It therefore would have been obvious to one of ordinary in the art to modify Fujiaski's invention according to Mozer.

As to claim 2, Fujisaki discloses a method as set forth in claim 1 wherein the first classification technique uses a modified Bayesian distance function to compute the discriminant values (use of a Bayesian classifier is suggested at column 6, lines 47-49).

Regarding claim 5, Fujisaki discloses a method as set forth in claim 1 wherein the input pattern is a scanned image (column 4, lines 37-38).

As to claim 7, Fujisaki discloses a method as set forth in claim 5 wherein each of the plurality of output classes represent an alphanumeric character (column 3, lines 8-17).

With regard to claims 11, 12, 15 and 17, the discussions provided above for claims 1, 2, 5 and 7 are applicable. The computer program product with associated portions is inherent in the computer (column 10, lines 45-56).

Allowable Subject Matter

6.   Claims 3-4, 6, 8-9, 13-14, 16 and 18-19 are objected to as being dependent upon

a rejected base claim, but would be allowable if rewritten in independent form including

all of the limitations of the base claim and any intervening claims.

References Cited

7.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

        U.S. Patent 5,912,986 to Shustorovich discloses a neural network based

character recognition system which rejects decisions with confidence values below a

threshold.

        U.S. Patent 5,974,163 to Kamei discloses a fingerprint classification system

which allots a probability to each class, and rejects a classification results when a

sufficient confidence cannot be obtained.

        U.S. Patent 5,970,171 to Baraghimian et al. discloses an apparatus and method

of fusing the outputs of multiple character recognition systems, which rejects candidate

characters whose confidence is below a threshold.

        "Approaches to the Optimisation of Pyramidal Architectures for Handwritten

Character Recognition" by Fairhurst et al. teaches hierarchical image classifiers with a

rejection mechanism.

"Reject Option for VQ-Based Bayesian Classification" by Vailaya et al. teaches classification with confidence values, posteriori probability and rejection for low confidence values.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon Chang whose telephone number is (703)305-8439. The examiner can normally be reached on M-F 8:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jon Chang
Primary Examiner
Art Unit 2623

Jon Chang
November 29, 2004